THE FINISH LINE BECOMES THE FRONT LINE

Exceptional Care for the Boston Marathon Injured

BUMC Team Critical to Saving Lives
Message From The Dean

DEAR FRIENDS,

The April 15 bomb blasts at the Boston Marathon triggered a massive emergency medical and disaster response as well as an outpouring of support. Many of our faculty and students were in the tent providing immediate first aid. Our primary affiliated hospital, Boston Medical Center, less than two miles from the race’s finish line, houses one of the best Level 1 trauma centers in the nation. We received a significant number of the most severely injured victims of the bombs. Our faculty, from a cross section of departments, provided the surgical and medical interventions critical to saving lives, preserving the best options for rehabilitation, and giving patients and their families emotional support. Other members of the campus community—staff, residents, and students—all contributed, whether at the scene of the bombings or in the Emergency Department. Students and graduates of our master’s degree in emergency management participated in evidence collection and evaluation. Our response can only be characterized as outstanding.

Critical to the emergency response were our surgeons. Developing highly skilled surgeons is a long and challenging process. In this issue we highlight our surgery department’s shadowing program for medical students, which is designed to explore what it’s like to be a surgeon early in the educational process and to dispel some of the myths about the specialty.

In other news, the Division of Graduate Medical Sciences, under the excellent leadership of Linda Hyman, continues to develop programs to better serve our graduate students. The Programs in Biomedical Sciences and the Professional Development and Mentorship program profiled in this issue are the latest enhancements for the training of tomorrow’s scientists as well as supportive resources to help graduate students make effective career decisions.

Commencement ceremonies rounded out the academic year with the added distinction of the selection of Deborah Vaughan as the winner of the 2013 Metcalf Cup and Prize, the highest teaching award that the University confers. Profiled in the last issue of this magazine, Dr. Vaughan is a consummate teacher who has enlightened and guided generations of BUSM graduates. The School of Medicine is exceedingly proud of this well-deserved recognition.

Finally, the opportunity at Alumni Weekend to spend time with alumni is a special experience. Whether it’s been 5 or 60 years since they graduated from the School, alumni appreciate their BUSM education—a tribute to the long tradition of excellence that marks BUSM. I always enjoy hearing how impressed our graduates are by the renovations and growth on the Medical Campus.

Best regards,

Karen Antman, MD
Provost, Medical Campus
Dean, School of Medicine
Professor of Medicine
Dean Antman congratulates Dr. Deborah Vaughan on receiving the 2013 Metcalf Cup and Prize for Excellence in Teaching at the 2013 BU Commencement ceremony.

For more than 40 years, Vaughan has contributed to research and teaching on the Medical Campus, but it is her deep commitment to pedagogy and enhancing the student experience through thoughtful and effective use of educational technology that earned her BU’s highest teaching award. Vaughan also is an assistant dean for admissions at the School of Medicine. Colleagues who nominated Vaughan for the award noted that she “is one of the select few who embrace change, especially when it is for the betterment of curriculum and/or for students’ learning. It is more than common to receive enthusiastic emails from her before the sun rises as she beams about the latest tool she’s using to augment her course for the better.”

The Metcalf Cup and Prize was established in 1973 by Arthur G.B. Metcalf, a former BU professor and chair emeritus of the BU Board of Trustees, to create “a systemic procedure for the review of the quality of teaching at Boston University and the identification and advancement of those members of the faculty who excel as teachers.”

THREE FACULTY MEMBERS HONORED WITH EDUCATOR OF THE YEAR AWARDS

Three faculty members were honored with Educator of the Year Awards at the BUSM Commencement ceremony May 18. Lorraine Stanfield, MD, was chosen as Educator of the Year in Preclinical Sciences; David B. McAneny, MD, as Educator of the Year in Clinical Sciences; and Matthew Nugent, PhD, as Educator of the Year in Graduate Sciences. Selected by the Committee on Faculty Affairs (CFA), the three were recognized for their excellence in teaching and mentoring. The awards are presented in the areas of preclinical sciences, clinical sciences, and graduate sciences at BUSM.

A faculty member since 1993, Dr. Stanfield is a clinical assistant professor of medicine, directs the Introduction to Clinical Medicine 2 course (ICM-23) and the Clinical Skills & Simulation Center, and is a member of the BUSM Medical Education office. An attending physician at the Dorchester House Multi-Service Center, she was first nominated at BUSM because of her interest in teaching medical students in community health centers. She received her BA in biochemistry from Princeton University and her MD from Harvard Medical School.

Dr. McAneny is an associate professor of surgery and vice chair for quality and patient safety at Boston Medical Center. He is an expert in tumors and other diseases of the endocrine system, the gastrointestinal tract, pancreas, hepatobiliary system, and spleen. The recipient of numerous awards, including the Massachusetts Medical Society award for outstanding contributions to medical education and medical students, Dr. McAneny received BUSM’s highest teaching award, the Stanley L. Robbins Award for Excellence in Teaching, in 2010. He received his medical degree from Georgetown University.

“Dr. Dasgupta’s brilliance is reflected...in our ability to grasp the global and finite concepts of the material and how it is applicable not only to the practice of medicine and the patient but also to the philosophical and scientific milieu of our society.”

A faculty member since 1992, Dr. Nugent is a professor of biochemistry, ophthalmology, and biomedical engineering. He is also director of the Massachusetts Lions Eye Research Laboratory and a course manager for the Foundations in Biomedical Sciences program in the Division of Graduate Medical Sciences. Dr. Nugent received his BA and PhD from Brandeis University and is a postdoctoral fellow at Massachusetts Institute of Technology.

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Another said, “Dr. Dasgupta genuinely cares about students and wanted to make sure we learned as much as we could from the course. She was always kind, engaged, and approachable. It is inspiring to see someone with so much enthusiasm for and commitment to teaching and helping students.”

DEBORAH VAUGHAN, PHD, RECEIVES BU’S METCALF CUP AND PRIZE

BUSM Professor of Anatomy and Neurobiology Deborah Vaughan, PhD, received the 2013 Metcalf Cup and Prize for Excellence in Teaching at the 2013 BU Commencement ceremony.

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Relationships: Foundations for Healing

Doctors urged to use ‘privilege and power’ in best possible way

A doctor’s relationship with a patient is the basis of all healing, physician Jessie Gaeta reminded a sea of newly minted doctors at the School of Medicine Commencement.

Currently medical director of the Boston Health Care for the Homeless Program’s Barbara McInnis House, Gaeta has spent her career working with patients who live in poverty, and who as a result often are chronically ill. She told BUSM graduates gathered at Agganis Arena that they are likely to work with such patients throughout their careers and urged them to passionately connect with them to build lasting relationships.

Doctors must first recognize the “structural inequities” that influence health so they can diagnose appropriately, said Gaeta. “Then, ask yourself, how can I, with privilege and power, impact those underlying factors? Never lose sight of the fact that what you are doing in the lab translates directly to a suffering person—let that guide you in the design and implementation of your research.”

Gaeta, currently a BU Advocacy Training Program core faculty member recently was promoted to assistant professor of medicine. She earned a medical degree from the University of Maryland School of Medicine, and completed her internship and residency in internal medicine at Boston Medical Center, where she was appointed chief resident in 2009. She became a physician advocacy fellow at Columbia University’s Institute on Medicine as a Profession in 2005. There, she co-founded Home & Healthy for Good, a Massachusetts-based advocacy program that finds permanent housing for the chronically homeless and then treats their illnesses. In 2009, Gaeta was named medical director of the Barbara McInnis House, a 104-bed medical facility that provides respite care to homeless people who are too ill to stay in shelters, but not sick enough to remain hospitalized. She won the Quincy Interfaith Sheltering Coalition’s 2004 Community Hero award and was named the Department of Medicine Teacher of the Year in 2009.

“I am still in awe of the privilege and power we doctors are afforded, even though many years have passed since I sat where you are sitting today,” Gaeta told members of the Class of 2013. “And knowing you as I do, I know you’ll use that privilege and power in the best possible way.”

She cited her own work over the years with a homeless patient she pseudonymously called “Lisa” as an example of a doctor’s privilege in providing care to the homeless. She first met Lisa in a Boston homeless shelter and soon became her primary care physician, often helping her deal with her emphysema. But Lisa also faced extreme poverty, had no family, and was constantly anxious.

As the two women developed a trusting relationship, Gaeta realized that Lisa needed the safety and stability of a home if she was going to thrive.

“This story first appeared in BU Today.”
A Critical Mass of Compassionate and Dedicated Individuals

Members of the GMS Class of 2013 receive master’s degrees in 15 fields with a rare degenerative connective tissue disorder. She told of being ready to quit and of speaking to her thesis advisor, Adam Hall. “Dr. Hall convinced me to stay that day by saying one simple thing, ‘You owe it to yourself to get your degree.’ This was the moment that I had to decide if I had the resolve to keep going; the turning point. Today I give to you the lesson I’ve learned: you owe it to yourself to continue to strive for more. Don’t let this be the end. Let this day be a starting point. Let this be the day that you convince yourself that you can do more than this. Keep striving. Even if life beats you down—especially if life beats you down.”

The inaugural GMS Special Faculty Service Award was presented to Jane O’Hern, EDD, for her 50 years of dedication and contributions to Boston University. After a long career at the School of Education, O’Hern was instrumental in developing the GMS Mental Health Counseling & Behavioral Medicine Program and served as a core faculty member. “Dr. O’Hern’s warmth, intelligence, enthusiasm, humor, and flinty New England charm are sorely missed after her most recent retirement from the School of Medicine,” Hyman said in tribute. Sadly, Dr. O’Hern passed away May 27. (See page 32.)

Matthew Nugent, PhD, professor of biochemistry, biomedical engineering, and ophthalmology, received the Educator of the Year Award in Graduate Sciences for his excellence in teaching and mentoring. The Robert F. Trotler Award in Biochemistry, which recognizes extraordinary student achievement in that discipline, was awarded to James Kornfield. Kornfield is currently pursuing a Master of Arts in Medical Science.

In closing, Hyman told the assembled graduates, “Don’t be surprised if you hear from me, not necessarily with the typical request for a donation, but rather to ask you to help out; to welcome a current student into your practice, your lab, your new world. Come back and visit, give a seminar, or just stop by to say hello. We hope to learn from you even after you leave BU.”

Members of the GMS Class of 2013 receive master’s degrees in 15 fields.
OATH OF THE SCIENTIST:

By accepting my Doctor of Philosophy degree, I earnestly assert that:

1. I will apply my scientific skills and principles to benefit society;
2. I will continue to practice and support a scientific process that is based on logic, intellectual rigor, personal integrity, and an uncompromising respect for truth;
3. I will treat my colleagues’ work with respect and objectivity;
4. I will convey these scientific principles in my chosen profession, in mentoring, and in public debate;
5. I will seek to increase public understanding of the principles of science and its humanitarian goals.

These things I do promise.

Acknowledgements: The authors wish to thank the faculty members and trainees of the Boston University School of Medicine who read our oath and supported the idea, as well as Dr. Linda Hyman and Dean Karen Antman, MD, for incorporating the oath into Boston University School of Medicine’s Commencement ceremony.

Commencement 2013
The Scientist’s Pledge

Students graduating with their medical degree (MD) from schools of medicine in the United States universally recite the Hippocratic Oath, an act that embraces their medical education and helps to cement their professional identities.

Despite widespread use of the Hippocratic Oath, no analogous oath has been widely adopted for students graduating with doctorates of philosophy (PhD) in biomedical sciences, even though students graduating with PhDs in the biomedical sciences need a general professional identity, too. Recognizing this, Boston University School of Medicine designed the Oath of the Scientist to be recited by PhD awardees at graduation ceremonies.

Rituals are a key element of culture. Earning a doctorate and then standing on a podium and being hooded to symbolize entry into a new profession represents a major achievement. The experience is ripe with meaning, significance, elation at past accomplishments, and a sense of responsibility for new ones to come.

The transition to responsibility was recognized centuries ago by the physician Maimonides in an oath outlining the physician’s ethical commitments: Oaths taken upon entering the medical profession reflect a need to recognize the power and responsibility bestowed upon a graduate. Sciences in general—and certainly biomedical sciences—have faced tremendous ethical challenges over the past few years, including the development of human embryonic stem cells and biological war tools.

Developing an oath for scientists involves many of the same issues of professional identity and ethics addressed by Maimonides and Hippocrates, but also poses additional concerns. The realm of science is very broad and encompasses several fields, including medical science. A scientist’s oath should reflect the professional activities inherent to being a scientist, a commitment to responsible conduct, and commitments to help humanity and society at large. Such an oath could emphasize the value of the graduates to our society.

An effective oath captures the essential elements of a field and is inspiring without being confining; developing an oath can help a field define itself. The Hippocratic Oath has been modified to reflect the evolution of medicine in society, and an oath of scientists might also evolve over time.

The oath developed at Boston University School of Medicine incorporates a commitment to apply science to humanitarian purposes. It also refers to key concepts related to the use of scientific methods to facilitate objective assessment of the natural world and explicitly highlights the role of scientists as teachers and mentors to the younger generation and society at large. This oath reflects the growth of science as a profession, and will help to inspire graduates to reach for their highest ideals as they continue in their careers.

First recited at the 2012 BUMC Commencement ceremony, the Oath of the Scientist is now recited at BUMC by graduates receiving their doctorate in science.

On May 2, members of the Boston University School of Medicine Dean’s Advisory Board and the Chester S. Keefer, MD Society gathered at the Four Seasons Hotel for the Society’s 20th annual dinner. Guests enjoyed meeting members of the first- and second-year classes and a performance by the all medical school student a cappella group The Doctor’s Notes. The Keefer Society recognizes donors who have supported the School of Medicine with lifetime gifts totaling $50,000 or more. That evening, 19 new inductees were recognized by Dean Karen Antman, MD, and welcomed into the Society.

Keefer Society Dinner MAY 2, 2013
The School of Medicine Dean’s Advisory Board held its annual spring meeting May 3. Dean Karen Antman, MD, opened with an update on the admissions profile of the incoming Class of 2017. She discussed the increasingly competitive residency matching profile of the incoming Class of 2017. She discussed the impact of research on impoverished children. Roundtable discussion groups led by board members Ann Cea, MD ’67, Pedram Salimpour, MD ’00, and Suzanne Cutler, PhD, addressed important School issues, including increased board engagement, research resources, and faculty recruitment.

ROBERT J. VINCI, MD, APPOINTED PROFESSOR AND CHAIR, CHIEF OF PEDIATRICS

Robert J. Vinci, MD, has been appointed the Joel and Barbara Alpert Professor and Chair of the Department of Pediatrics and chief of pediatrics at Boston Medical Center (BMC).

For the past 20 years, Dr. Vinci has served as vice chair and clinical chief of the department, spearheading the significant expansion of pediatric clinical services. He co-founded the Kids Fund at BMC, which helps meet children’s most basic needs and gives them the foundation for a healthy and bright future. He led the campaign to establish Kids Can’t Fly, a window-fall prevention program for children in Boston that has led to a dramatic decrease in the number of window-fall injuries. And in partnership with the Massachusetts Department of Public Health, Dr. Vinci established the Massachusetts Emergency Medical Services (EMS) Program for Children, which created training protocols and guidelines for children in the statewide EMS system.

Dr. Vinci received his medical degree from the College of Medicine and Dentistry-Rutgers Medical School, now known as the Robert Wood Johnson Medical School. After completing his pediatric residency at the former Boston City Hospital (now BMC) and serving as chief resident, he joined the Department of Pediatrics at BUSM in 1984. Two years later, he established the Division of Pediatric Emergency Medicine at Boston City Hospital.

An innovative leader in medical residency education throughout his career, he founded the fellowship program in Pediatric Emergency Medicine here in 1988 and has directed pediatric residency since 1989. In 1996, Dr. Vinci and Frederick H. Lovejoy, MD, established the Boston Combined Residency Program in Pediatrics, one of the nation’s leading pediatric residency programs. He has also championed research activities, global health training, and flexible training opportunities for pediatric residents. Dr. Vinci has authored more than 60 peer-reviewed papers and book chapters on the topics of pediatric emergency medicine and pediatric education, and has received numerous awards for teaching and mentoring, among them BUSM’s Leonard Tow Humanism in Medicine Award in 2010.

WILLIAM R. CREEVy, MD, NAMED CHIEF EXECUTIVE OFFICER AND PRESIDENT, FACULTY PRACTICE FOUNDATION

William R. Creevy, MD ’85, has been appointed chief executive officer and president of the Faculty Practice Foundation (FPF) and assistant dean for faculty practice at BUSM. He is responsible for the overall strategic direction of the FFP and direct fiscal and operational oversight of the physician organization.

Creevy has served as vice chair of the Department of Orthopaedic Surgery, leading orthopaedic surgery clinical services for the past 15 years. He is also the physician quality leader for orthopaedic surgery at BMC. Creevy received his undergraduate degree from Boston University, graduating magna cum laude, and his medical degree from Boston University School of Medicine, where he was named a Commonwealth Scholar. He completed his orthopaedic surgery residency at BMC, serving as chief resident, and a fellowship in sports medicine at the Graduate Hospital, University of Pennsylvania. He joined the Department of Orthopaedic Surgery at BUSM in 1994. In 2001, he received a Master of Science in Health Care Management from the Harvard School of Public Health.

Creevy has received numerous awards, including the Robert E. Leach Resident Teaching Award from the BU Orthopaedic Surgery Residency Program.
Empowered by the launch of the new Foundations in Biomedical Sciences (FIBS), the Division of Graduate Medical Sciences (GMS) has created a single entryway to the division’s doctoral programs. Programs in Biomedical Sciences (PIBS) provides the framework for prospective students to be admitted to GMS rather than to a specific department within the division. Now, recruiting students to the department is centralized in one process. “We are promoting our doctoral programs as an integrated and interdisciplinary model of biomedical sciences education,” says Linda Hyman, PhD, associate provost for GMS and director of PIBS. “We accept students who know the specific discipline they want to study—biochemistry or microbiology, for example—and we also accept students who know they want to pursue biomedical sciences education but aren’t decided which area. Both groups can benefit from the integrated model.”

Previously, each of the 14 doctoral programs had its own admissions committee, recruitment day, and acceptance procedures, plus other infrastructure that surrounds attracting and enrolling new students. Hyman points out that while individual departments have not been required to use PIBS for recruiting new students, most of them have signed on.

“In the spirit of efficiency as well as looking at what is best for students and optimizing their experience, we created this single portal into the doctoral program at the medical school,” notes Hyman. “The streamlined process has reduced the considerable faculty and staff resources required to attract the most qualified students to our programs.”

Hyman points out the flexibility advantages of PIBS for students who enter thinking they want to study in one program and realize they are interested in another area of science. They have more choices and options in that they have not committed to one program from the outset and can learn what it is that they really want to study,” says Hyman. “We want our students pursing the science that is most interesting to them and where they can make the greatest contributions.”

PIBS also meshes smoothly with the new Foundations in Biomedical Sciences program, as students enter GMS through a single process and experience their first year as a more cohesive group.

“The core of all of these changes we initiated enhancing the educational experience of our students,” adds Hyman. “We care about our students. The message is Boston University is the best place to study and engage in biomedical science.”

Professional Development and Mentorship: Foundations Curriculum 2.0

A few months after creating a new curriculum, Foundations in Biomedical Sciences (FIBS), BUMS’s Division of Graduate Medical Sciences (GMS) formed a committee to develop and implement a program focused on professional growth and mentorship. Available to all students in all GMS programs, the Professional Development and Mentorship curriculum addresses the need for training in a variety of skills applicable to different careers.

“We recognize that perhaps 12 percent of our graduates will do what we do—we go into academia,” says Barbara Schreiber, PhD, associate professor of biochemistry and a leading participant in the development of this new curriculum. “It is, therefore, our responsibility to train not only that group but the other 88 percent. This program was designed—and it is still a work in progress—to help our students develop the skills that they will need for a career in science, but not necessarily as an academic faculty member or a researcher.”

Developed during the 2011-2012 academic year and initiated in the fall of 2012, the program comprises a core curriculum of both theoretical and practical training and experiences for future careers in a host of scientific sectors. The overall goal is to meet the diverse needs of graduate students by enhancing their skills in critical thinking, communication, leadership and management, bioethics, intellectual property, and research compliance to assure that they are prepared for successful careers in academia, industry, government, or any field they choose to enter.

As “basic and clinical research scientists, we don’t always have the skill sets you need to succeed outside of academia or have the contacts for students to move forward,” notes Andy Henderson, PhD, associate professor of medicine and a member of the committee, who created and implemented the Professional Development and Mentorship curriculum. “We are already giving our students a strong science foundation; with this program, we are enhancing that by giving them the skills to apply it to public policy, education, or whatever possibilities they wish to explore. When you look nationwide, progressive students are demanding this. They are looking at options other than the traditional academic career track. They want to be able to promote themselves and be able to network effectively.”

An important component of the curriculum is the mentorship piece that offers students access to alumni who have agreed to serve as mentors. “Alumni can give back in a large way with a small investment,” says Schreiber. “Mentors are important and can give students real-life experience. Business schools figured this out long ago and made networking a priority.”

Alumni who have volunteered to be mentors engage in a range of activities, including as researchers and administrators in academia; clinical workers in hospitals and institutes; research analysts for biomedical and pharmaceutical companies; and professors in engineering schools; and senior research scientists at commercial laboratories (engaged, for example, in human genetics therapies development, assay development, and glycolic and proteolytic technology development). They are also scientists and administrators at the National Institutes of Health (NIH) and the US Public Health Service.

There are a series of workshops on topics including work-life balance and creating an Individual Development Plan (IDP), which is a career-planning strategy endorsed by the NIH and a number of scientific societies that uses the online tool myIDP as a framework to help students set achievable goals, improve professional skills, and engage mentors in career development. The Personal Qualities and Career Workshop examines how personality type has an impact on career and explores choosing between academia and industry, identifying the intelligence that promotes leadership, and how understanding can help develop a career plan. There are also sessions on how to get published and how to move from academia to entrepreneur- ship, and self-promotion strategies to use with prospective employers.

“We have a wonderful workshop titled ‘Selling Yourself, A Dirty Job You Can Do’,” presented by Toby Berkovitz, PhD, associate professor of advertising in the college of communication and a media consultant on presidential and congressional campaigns,” says Schreiber. “The skills he highlights are critical no matter what you do. To say that the experiments in your lab are going to get you an academic position is not enough. You have to figure out how to get those hiring to agree that you are the person they need and that your skills are more promising than those of other candidates.”

Framing the curriculum in a workshop and short program format offers greater flexibility. “We are very sensitive to the already considerable time commitments our students have to their required studies and laboratory responsibilities. As it is, training is getting more extended, so the last thing we want to do is have another half-year requirement,” says Henderson.

Schreiber notes that the curriculum is a work in progress. “We are still working on a biostatistics component that is specific for our doctoral students, a two-credit basic skills course in science writing and oral presentation that Dr. Hyman will be directing. We are gathering feedback from faculty on what areas would best be presented in credit-bearing courses and what is best for workshop format.”

Schreiber also credits the work of the GMS Postdoc office under the direction of Yolanta Kovalko, which offers excellent career development panels and workshops that the curriculum shares. Students can also meet with a career consultant who will advise them on cover letters, interviewing (including mock interviews), negotiating job offers, identifying career goals, and networking.

Program leaders are looking to increase participation and educate students and faculty as to the importance of all the Professional Development and Mentorship curriculum offers. “They are paying off as the program has increasingly drawn the attention of medical students.”

“The implementation of the Foundations in Biomedical Sciences program and the Professional Development and Mentorship program moves GMS to a more integrated and interdisciplinary level of graduate science education,” says Hyman. “We are taking the best of our science education and combining it with a focus on career advancement to provide our students with a rich environment that is responsive to their needs. This is a dynamic process to which we are committed.”

For more information on Professional Development and Mentorship programs, go to www.bumc.bu.edu/gms/gateway/prospective/phd-programs.
Exceptional Care for the Boston Marathon Injured

It was a regular Monday at BMC, BUSM’s primary teaching hospital located a five-minute ambulance ride from the finish line. BUSM faculty directed and staff BMC’s Emergency Department (ED) and trauma team along with medical students on rotation in the ED and in surgery.

Everything changed at 2:49 p.m., when the first of two bombs exploded just short of the finish line. Bystanders, race officials, Boston Emergency Medical Services, and medical volunteers mobilized and triaged the hundreds of injured, sending them to area hospitals. BMC pediatric resident Natalie Stavas, MD, had just finished running the marathon on a broken foot when the bombs exploded. Jumping over barricades to get to the injured, she applied tourniquets to limbs and pumped oxygen. BUSM medical student marathon volunteers grabbed wheelchairs and gurneys to help get the injured into ambulances. BMC doctors who were running the marathon just kept on going to reach the Medical Campus; others who were bystanders used any means necessary to get to the hospital. They included Jeffrey Kalish, MD, assistant professor of surgery and director of endovascular surgery at BMC, who was watching his wife run the race and took a pedicab to the hospital to avoid gridlock on the streets.

BMC, which embraces the School of Medicine with buildings on both sides of the Medical Campus, is a Level 1 trauma center and the busiest provider of emergency services in New England. Although staff were seasoned, highly skilled practitioners, Marathon Monday was different for these trauma veterans. They had only minutes to prepare for what one nurse described as, “Patients bloody, missing limbs, and in shock physiologically and psychologically. They had multiple shrapnel wounds and were being treated as though they had just been removed from the front lines of a war zone in Bosnia, Iraq, or Afghanistan.”

BMC received 23 patients over 40 minutes ranging in age from 5 to 70, many in critical condition. A majority had limbs as well as life-threatening injuries. Trauma, vascular, orthopedic, and plastic surgeons worked on 16 patients in 10 operating rooms, performing seven amputations on five patients. Patients’ bodies were riddled with nails, pellets, and glass, a number of them were wounded so severely that they needed multiple operations in the days and weeks following. “As surgeons, we see patients like this with mangled extremities, but we don’t see 16 of them at the same time, and we don’t see patients with blast injuries,” said Peter Burke, MD, professor of surgery and chief of the section of Acute Care and Trauma Surgery at BMC.

“We are used to a lot of chaos, but this was extraordinary,” said Andrew Ulrich, MD, assistant professor of emergency medicine and executive vice chair of emergency medicine at BMC. BMC’s motto is “Exceptional Care Without Exception.” On Marathon Monday the accuracy of this deeply felt mission was demonstrated by the physicians, nurses, technicians, transport and nutrition staff, and patient advocates who cared for and supported the patients and their family members. Off-duty physicians came in to help wherever they were needed. In less than an hour, a family resource center was established for the victims’ families with computers, phone lines—including an international line—and phone chargers. Food was offered while hospital social workers, chaplains, patient advocates, and volunteers worked with families to update them on conditions, unite them with their loved ones as quickly as possible, and lend support in the face of such devastating loss. “In my 20 years here I have never been more proud to be a part of BMC,” said Ulrich.

In addition to caring for patients and their families, experts from the master’s programs in health care emergency management and biomedical forensic sciences assisted in tracking down the suspected bombers. Four graduates of the forensic program—who are also adjunct professors of the program—work in the Boston Police Department Crime Lab as criminalists and were involved in analyzing the evidence.

“The Biomedical Forensic Sciences program trains forensic scientists for scene investigation, evidence analysis, and forensic research,” said Adam Hall, PhD, forensic chemistry faculty in the Biomedical Forensic Sciences program. “Students trained in these disciplines become professionals who are crucial to comprehensive forensic investigations, including the horrific explosions that occurred in Boston on April 15, 2013.” Ultimately, the blasts killed three people and injured more than 260. It has been noted time and again that the extraordinary response of those at the finish line using all available techniques, especially tourniquets to stem loss of blood, and in the emergency department and critical care units across the city of Boston was responsible for limiting the number of deaths. The Medical Campus played a crucial role in this response, making a difference in the lives of the victims and their families.

“Our medical community, as demonstrated on Marathon Monday and the days and weeks that followed this tragedy, is truly extraordinary,” said Dean Karen Antman, MD. “Our faculty, staff, and students are consummate caregivers and their dedication and outstanding skill is an inspiration.”

US Marine Corps members of Semper Fi who lost limbs in Iraq and Afghanistan talk to members of the BMC Emergency Department who cared for victims of the Boston Marathon bombings. The Marines also offered support and encouragement to patients who underwent amputations.
I grew up in Watertown, a block and a half from where the second Boston Marathon bomber was captured and where my parents still live. On Marathon Monday, I was in the main medical tent less than a block from where the first bomb exploded. Posing for a group photo with other volunteers from BMC’s Emergency Department (ED) that morning, we had no idea what we would be facing later that day. Along with several of my colleagues, I was assigned to Tent A near the finish line. We arrived early, prepared our areas, then waited until the elite runners came through, followed by a steady stream of manageable patients. When that first explosion came—a sound none of us had ever heard before—we stopped and the entire tent went silent. It sounded like a bomb. Then the second boom came and someone yelled, “They need doctors!” and before we could stop to think, we ran out into the acrid smell of explosives toward the injured.

I will never forget that scene. People lay in disarray, their clothes and shoes blown off, the sidewalk covered with blood. They lay soundless, but family members, friends, and strangers held them, held their torn limbs, and pleaded with them to hang on. Miraculously, almost every patient I attended to had already been tourniqueted with a torn pant leg, a belt, or someone’s shirt. Their faces were unlike any I had ever seen; these patients were silent and in shock. Smoke hung in the air, a store alarm rang, and amid the chaos, we worked as we’d never worked before. We used scattered debris to splint legs that were barely hanging on. We rolled people onto boards. Boston Emergency Medical Services (EMS) was everywhere with stretchers, backboards, and helping hands. Volunteers, police, and bystanders helped evacuate patients as quickly as possible in any way they could. A group of us put a patient on a backboard and ran, carrying him back to the tent, where we found a scene that resembled a MASH unit. Doctors and nurses moved from patient to patient, assessing injuries, placing IVs and bandages, and doing whatever was needed. Boston EMS triaged with number cards or simply wrote on people’s foreheads, apologizing as they did so. I can’t say enough about Boston EMS; they worked furiously and with incredible speed to get people organized and get patients moved out to hospitals. And in between all this was my BMC family. We looked at each other in disbelief and despair as we worked. We gathered together after we had done what we could and worried about our department. When we finally made contact with the ED, they told us to come in. And we did. By bike, ambulance, walking, whatever way we could. And when we got there we found our department filled with people who had come from every part of the hospital, every part of the city and state, to help where they could. There were embraces for those of us who had been at the scene. Then we did what we could, until we were just getting in the way and were told to go home.

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Tracey Dechert, MD, knows from experience that medical students are exposed to misinformation about the field of surgery. As a woman, she was actively discouraged from becoming a surgeon; as the faculty advisor to the student Surgical Society at BUSM, she often hears students tell her that before their surgical rotation they had never considered surgery because they either didn’t understand the field, or held negative perceptions of it.

When Dechert came to BU’s Medical Campus as an attending at Boston Medical Center (BMC), she never intended to focus on teaching, “I love the work because trauma, critical care, and emergency surgery are very busy. I also like the patient population of a safety net hospital and serving people who traditionally have not had access to high-quality care.”

As Dechert got farther along in her training and career, she realized how much she enjoyed teaching and was named associate program director for the residency program in general surgery at BMC. “That is when it really hit. I started meeting with students who thought they were interested in surgery and who were brimming with ideas of what it meant to be a surgeon, many of which were inaccurate.”

“I heard the stories and the rumors about surgeons when I was a student, and they weren’t nice ones,” recalls Dechert, associate professor of surgery and trauma surgeon at BMC. “I thought, after all of these years, this is still what students are hearing—and for women it is even worse. Students have told me about being discouraged not just by family members, but doctors in other fields of medicine and other students.”

From her experience in the field, Dechert knew that perception and reality were quite divergent. She thought that if those students could be exposed to surgical care and practicing surgeons early in their medical school experience, they could make more informed decisions about their careers. “First and second years of medical school are learning all of the basics, but we can’t wait until third year to let them see what surgery is about.”

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As the faculty advisor to the surgery interest students, Dechert had a ready-made group of first- and second-year students who were considering surgery as a career path and who could benefit from a shadowing program. With the backing of the Department of Surgery, Dechert put together a program that offers students access to surgical situations and to both resident and attending surgeons years before their required surgical rotation.

A little more than a year ago, first- and second-year students began shadowing the trauma service. Dechert feels that with classes and studying for exams students may only be able to shadow at night or on weekends, making the trauma service a good fit. “The team works 24 hours a day, 7 days a week, and weekends and holidays. “A student can come in on a Saturday morning or Sunday night and our whole team is here—attendants, fellows, chief residents, residents, interns, and third-year medical students,” explains Dechert. “Students have the opportunity to learn about the different roles and gain experience at the different levels of training and providing care. They are linked with various members of the team—they can go to the Emergency Department to see what’s happening with new patients or the OR, and if there is no surgery happening, they can go to the ICU.”

Because each day and night can be different in trauma service, Dechert says the students are never bored, and they can shadow as many times as they want.

“The first night I shadowed the surgery team I witnessed a patient with penetrating trauma, a stab wound that required no surgical intervention, and the placement of a chest tube in a patient who had suffered bilateral pneumothorax subsequent to an automobile accident,” says David Cholok ’16. “During perhaps my most arresting experience, I observed a patient with a ruptured abdominal aortic aneurysm. I was surprised by the willingness of surgeons and residents to facilitate my learning experience. As long as I wasn’t immediately in the way, everyone was respectful and more than willing to shed light on what was going on at any particular moment.”

Approximately 30 students have taken advantage of the program, and Dechert wants to increase this number significantly. She is looking for ways to get the word out to students, especially those who may not have considered surgery as an option. Dechert notes that surgery shadowing is not unique to BUSM, as in most medical schools, students can seek out surgeons to observe. “But the onus is on the student,” she says. “Our program facilitates the experience for students, alleviating what may seem to them a daunting task of approaching an already-busy surgeon and asking for his or her time. The initiative comes from us, the surgeons.”

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Learning is enhanced by the firsthand exposure of shadowing, which connects students to the living, breathing expression of their studies. “The first year of medical school involves a significant amount of classroom and study time,” says Chris LaChapelle ’16, a program participant. “One can forget the reasons for embarking on the voyage of becoming a doctor.”

Students get to see the anatomic structures they have been studying in the lab in a live patient while the surgical team describes each step in a gall bladder removal or an appendectomy, for example. Step stools are provided for viewing surgeries from above, and students are encouraged to ask questions along with their third-year student counterparts who are on their surgical rotation.

“Most important learning moments for me have been unexpected and unplanned,” notes Tyler Robinson ’15, who has shadowed in surgery a number of times. “Chatting informally with interns, residents, fellows, and medical students has given me many different perspectives on surgery, career development, and work-life balance. It’s been great to be a second-year medical student and to shadow in my free time. I’ve been able to ask all the questions I’ve wanted without being responsible for knowing much or seeing to patient duties. My observations of serious cases being handled in the OR and ED have been pretty awe-inspiring, too.”

Robinson first met Dechert at a breakfast seminar to introduce general surgery to first- and second-year medical students. The seminar’s panel included two BMC surgical attendings and two recently matched BUSM fourth-years. “I was happy to see that all four were women, and I asked whether this perhaps signaled a change in the field of surgery, in being more accommodating to family and personal needs,” he says. “They all affirmed that surgery remained tougher than many other fields, but that it in no way prohibits you from having a quality personal life.”

Members of the Department of Surgery—as well as patient care providers from the specialties involved with surgical services like emergency medicine, anesthesiology, and radiology—have been very supportive of the shadowing program, and because the trauma service works as a team, members are used to being observed as well as teaching. Exposure to postgraduate training is another benefit of shadowing. “I got a snapshot into the life of interns and residents in a surgical program,” notes LaChapelle. “They offered invaluable information on how best to tackle med school and the pros and cons of surgical residency.”

Cholok describes his shadowing experiences as “illuminating.” He was struck not only by the mechanics of the surgical specialty, but also by the dynamics of comprehensive patient care. “I was able to witness the progression and transitions from emergency care, to radiology, and finally to the operating room, and was cognizant of the intricate collaboration between specialties at each stage,” he says. “My shadowing experience helped to actualize this ideal of teamwork in health care delivery, especially when manifested in an emergency or life-threatening situation. And, of course, I was amazed at the skill and dedication exhibited by the surgeons I shadowed.”

“This program allows medical students, before they define themselves, to have firsthand experience of real-life surgery in real time,” says Peter Burke, MD, BUSM professor of surgery and chief of acute care and trauma surgery at Boston Medical Center. “Shadowing helps students make better decisions about what they want to do in an organized fashion. Mature and informed decision making helps to create better physicians who are really happy with the choice they make.”

To Burke, it is a win-win situation—students experience surgery early and deepen their clinical knowledge, while the field benefits by developing prospective candidates for surgical careers.

“We owe it to our students and their future patients to clarify and demystify the field of surgery,” says Gerard Doherty, MD, James Utley Professor and Chair of the Department of Surgery and surgeon-in-chief at BMC. “Through this shadowing program, students can learn how diverse the field is, and how interdisciplinary the practice is when done well. Many students who believe that they are destined for some other field (like I was) only find out how interesting surgery is when they are exposed to it directly. For me, that was late in my third year of medical school—it would have been much better for me if my school had had a program like this!”

(Left) Dr. Dechert, center, faculty advisor to the BUSM student Surgical Society, talks with medical student Brian Currie (BUSM ’15), a participant in the Department of Surgery’s shadowing program.

(Below) Medical students observe surgery as part of the shadowing program.
Researchers Propose Potential Epigenetic Mechanisms for Improved Cancer Therapy

A review article by Boston University Cancer Center researchers proposes a new epigenetic hypothesis linked to tumor production and novel ideas about what causes progenitor cells to develop into cancer cells. The study, published in February 2013 issue of *epigenetics*, the article provides examples of how epigenetic drug treatments could be beneficial in treating cancers and also decrease the likelihood of cancer relapse.

The article’s corresponding author, Sibaji Sarkar, PhD, is a professor of medicine and colleagues propose that epigenetic processes, specifically DNA methylation, may trigger cancer progenitor cell formation from somatic cells in coordination with other cellular and environmental events. “Progenitors are known to cause cancer relapse, and because epigenetic drugs can help destroy progenitor cells, these drugs could help reduce the chance of cancer relapse and improve the long-term outcomes of people with cancer,” said Sarkar. “While our hypotheses are based on current knowledge, we are proposing important and exciting areas to be explored in the future.”

Research included in this review article was funded in part by the American Cancer Society.

**New Genomic Regions Associated with Age-Related Macular Degeneration Discovered**

Lindsay Farrer, PhD, chief of the Biometric Genetics section and BUSM and BUPSfH professor, is co-lead author of a study by an international group of researchers that has discovered seven new regions of the human genome—called loci—that are associated with increased risk of age-related macular degeneration (AMD). The study, which is published online in *Nature Genetics* and represents the most comprehensive genome-wide analysis of genetic variations associated with AMD, was supported by the National Eye Institute (NEI), a part of the National Institutes of Health.

AMD often runs in families and is more common among certain ethnicities, such as Asians and people of European descent. AMD typically presents later in life, but identifying genetic variants associated with the disease, all of which are present at birth, could help future studies determine how to stop the disease from progressing and even from occurring. “Genetic research allows us to piece together disease pathways that may have their starting point much earlier in life,” said Farrer. “These newly identified genes, individually and collectively, provide novel clues and targets to evaluate for their potential therapeutic benefits.”

**Study Reveals Potential Target to Better Treat, Cure Anxiety Disorders**

BUSM researchers have, for the first time, identified a specific group of cells in the brainstem whose activation during rapid eye movement (REM) sleep is critical for the regulation of emotional memory processing. The findings, published in the *Journal of Neuroscience*, could help lead to the development of effective behavioral and pharmacological therapies to treat anxiety disorders, such as post-traumatic stress disorder, phobias, and panic attacks.

During REM sleep, the brain becomes more active and the muscles of the body become paralyzed. Dreaming generally occurs during REM sleep, as well as physiological events including saccadic eye movements and rapid fluctuations of respiration, heart rate, and body temperature. One particular physiological event, which is a hallmark sign of REM sleep, is the appearance of phasic positive waves (P-waves).

memories of fearful experiences can lead to enduring alterations in emotion and behavior. Presently, exposure therapy, which involves controlled re-exposure to the original fearful experience, is considered one of the most effective evidence-based treatments for anxiety disorders. “Given the inconsistency and unpredictability of exposure therapy, we are working to identify which processes or processes during REM sleep dictate the success or failure of exposure therapy,” said Subimal Datta, PhD, director and principal investigator at the BUSM Laboratory of Sleep and Cognitive Neuroscience, who served as the study’s lead author. “The study results provide direct evidence that the activation of phasic P-wave activity within the brainstem, in conjunction with exposure therapy, is critical for the development of long-term retention of fear extinction memory,” said Datta, who also is a professor of psychiatry and neurology at BUSM.

Research included in this study was supported in part by the National Institutes of Health’s National Institute of Diabetes, Digestive and Kidney Diseases.

**Study Reveals Potential Immune Benefits of Vitamin D Supplements in Healthy Individuals**

Improving vitamin D status by increasing its level in the blood could have a number of non-skeletal health benefits, a BUSM study shows. Published online in *PLoS ONE*, the research reveals for the first time that improvement in the vitamin D status of healthy adults significantly impacts genes involved with a number of biologic pathways associated with cancer, cardiovascular disease (CVD), infectious disease and autoimmune diseases. While previous studies have shown that vitamin D deficiency is associated with an increased risk for the aforementioned diseases, these results go a step further in providing direct evidence that improvement in vitamin D status plays a large role in improving immunity and lowering the risk for many diseases. Epigenetics is an emerging field of study exploring how genetically identical cells express their genes differently—resulting in different phenotypes—due to mechanisms other than DNA sequence changes. Previous studies have shown that a gene, called Rd2, is associated with high insulin production and excessive adipose (fat) tissue expansion that drives obesity when Rd2 levels are low, and cancer when Rd2 levels are high. The Rd2 gene is a member of the Bromodomod Extra Terminal (BET) family of proteins and is closely related to Brd4, which is important in highly lethal carcinomas in young people, as well as in the replication of Human Immunodeficiency Virus (HIV). The BET family proteins control gene expression epigenetically by acting on chromatin, the packaging material for genes, rather than on DNA directly. The study results show that proteins in the BET family have a strong influence on the production of pro-inflammatory cytokines in macrophages.

“Our study suggests that it is not a coincidence that patients with diabetes experience higher risk of death from cancer, or that patients with chronic inflammatory diseases, such as arthritis and insulin resistance, are more likely to develop cancer from inflammatory complications,” said Belkina. “This requires us to think of diverse diseases of organs as much more closely related than our current division of medical specialties allows.” Research was supported in part by the National Institutes of Health’s National Institute of Diabetes, Digestive and Kidney Diseases.

BUSM and BUPSfH researchers have shown that alcohol is a major contributor to cancer deaths and years of potential life lost. These findings, published in the April 2013 issue of the *American Journal of Public Health*, also show that reducing alcohol consumption is an important cancer prevention strategy, as alcohol is a known carcinogen even when consumed in small quantities.

Timothy Naimi, MD, MPH, associate professor of general internal medicine, and colleagues from the National Cancer Institute, the Alcohol Research Group, the Public Health Institute, and the Centre for Addiction and Mental Health examined recent data from the United States on alcohol consumption and cancer mortality. They found that alcohol resulted in approximately 20,000 cancer deaths annually, accounting for about 3.5 percent of all cancer deaths in the United States.

Breast cancer was the most common cause of alcohol-attributable cancer deaths in women, accounting for approximately 10,600 deaths annually, or 15 percent of all breast cancer deaths. Cancers of the mouth, throat, and esophagus were common causes of alcohol-attributable cancer mortality in men, resulting in a total of about 6,000 annual deaths.

“The relationship between alcohol and cancer is strong, but is not widely appreciated by the public and remains underemphasized even by physicians,” said Naimi, who served as the paper’s senior author. “alcohol is a big public health concern, and remains underemphasized by the public and remains underemphasized even by physicians,” said Naimi, who served as the paper’s senior author. “alcohol is a big public health concern, and remains underemphasized even by physicians,” said Naimi, who served as the paper’s senior author. “alcohol is a big public health concern, and remains underemphasized even by physicians,” said Naimi, who served as the paper’s senior author. “alcohol is a big public health concern, and remains underemphasized even by physicians,” said Naimi, who served as the paper’s senior author. “alcohol is a big public health concern, and remains underemphasized even by physicians,” said Naimi, who served as the paper’s senior author.

The authors add: “Perhaps most importantly, we showed that even modest changes in alcohol consumption, particularly among heavy drinkers, can result in large reductions in cancer deaths.”

**Memories of fearful experiences can lead to enduring alterations in emotion and behavior.**

*Epigenetics is an emerging field of study exploring how genetically identical cells express their genes differently.*

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Vitamin D is unique in that it can be both ingested and synthesized by the body with sun exposure. It is then converted by both the liver and kidneys to a form that the body can use. An individual’s level of vitamin D, or their vitamin D status, is determined by the level of 25-hydroxyvitamin D in the blood. Vitamin D deficiency—which is defined as a status of less than 20 nanograms per milliliter (ng/ml) of 25-hydroxyvitamin D—can cause a number of health issues, including respiratory, cardiovascular, autoimmune, infectious diseases, type 2 diabetes, and cardiovascular disease.

Samples of white blood cells were collected from study participants receiving different levels of vitamin D, and a broad gene expression analysis was conducted on the samples, with more than 22,500 genes investigated to see if their activity increased or decreased as a result of vitamin D intake. The results of the gene expression analysis indicated statistically significant alterations in the activity of 291 genes. Further analysis showed that the biologic functions associated with the 291 genes are related to 160 biologic pathways linked to cancer, autoimmune diseases, infectious diseases, type 2 diabetes, and cardiovascular disease.

The results of the gene expression analysis indicated statistically significant alterations in the activity of 291 genes.

Researchers identified a new chemical class of compounds that effectively blocked genetically diverse viruses from replicating by limiting RNA production by the virus in cell culture.

### Chemical Compounds That Halt Virus Replication Identified

A new class of compounds that have the potential to block genetically diverse viruses from replicating has been identified by BUMS researchers. The findings, published in Chemistry & Biology, could allow for the development of broad-spectrum antiviral medications to treat a number of viruses, including the highly pathogenic Ebola and Marburg viruses.

Because the production of viral RNA is the first step in successful replication, it appears that we have uncovered an Achilles’ heel to halt virus infection, said Filone. “These compounds represent probes of a central virus function and a potential drug target for the development of effective broad-spectrum antivirals for a range of human pathogens.”

Research highlighted in this press release was funded in part by the National Institutes of Health’s National Institute of Allergy and Infectious Diseases (NIAID) under grant award numbers R01 AI109615-01 and K22AI-064606 (PI: Connor). The study was conducted in collaboration with a team of researchers led by James Hamilton, PhD, professor of medicine, physiology, and biophysics, and leading expert in viral pathogenesis.

### Using magnetic resonance imaging (MRI) to measure blood flow over atherosclerotic plaques could help identify plaques at risk for thrombosis.

Their findings introduce a novel way to study COPD that could lead to new treatments and ways to monitor patients’ responses to those treatments.

### Busm Researchers Identify Novel Approach to Study COPD and Treatment Efficacy

BUMS researchers have pinpointed a genetic signature for chronic obstructive pulmonary disease (COPD), from airway cells harvested utilizing a minimally invasive procedure. Their findings introduce a novel way to study COPD that could lead to new treatments and ways to monitor patients’ responses to those treatments. The study is published online in the American Journal of Respiratory and Critical Care Medicine.

“There have been limited molecular studies of COPD. Our discovery of the inaccessibility and invasiveness of obtaining lung tissue,” said Katrina Steiling, MD, assistant professor of medicine at BUMS who served as the study’s first author. The researchers hypothesized that while COPD primarily affects the tissue deep within the lung, the effects of COPD might be detectable in relatively accessible tissue throughout the respiratory tract. To examine their hypothesis, the researchers...
team used airway cells obtained during a bronchoscopy, a procedure that involves putting a small camera into the airway through the nose or mouth.

“Our data shows that there are consistent gene-expression changes that occur in both airway and lung tissue cells in individuals with COPD,” said Avrum Spira, MD, MSc, Alexander Graham Bell Professor of Medicine and Chief of the Division of Computational Biomedicine at BUMS, who served as one of the senior co-authors of the study.

“Part of the COPD ‘signature’ reverses with therapy, suggesting that examining airway cells might be a minimally invasive tool for monitoring the disease and evaluating the response to therapy more quickly in order to determine the best course of treatment for each individual patient,” said Marc Lenburg, PhD, associate professor in computational biomedicine and bioinformatics at BUMS and the study’s other senior co-author.

In this study, skin cells were cultured and exposed to UVB or UVA rays and then examined for expression and accumulation of progerin, a protein that has been associated with both normal and abnormal aging.

The study, published in the Journal of Investigative Dermatology, was led by co-authors Thomas M. Ruerger, MD, PhD, professor and vice chair of the Department of Dermatology, and Hirotaka Takeuchi, MD, PhD.

In this study, skin cells were cultured and exposed to UVB or UVA rays and then examined for expression and accumulation of progerin, a protein that has been associated with both normal and abnormal aging. The results showed that progerin is induced by ultraviolet light, specifically UVA rays, and that this induction is mediated by reactive oxygen species, causing alternative splicing of the laminA gene pre-mRNA.

“This, to our knowledge, is the first time that induction of progerin is described in response to an external agent,” said Ruerger, who also is professor of pathology and laboratory medicine at BUMS and a dermatologist at Boston Medical Center. “Our results reveal a novel mechanism by which UVA rays, which are often emitted from tanning beds, may play a role in the acceleration of photoaging of the skin.”

The researchers also note that some aspects of photoaging should be regarded as a process of damage-accelerated intrinsic aging, and that intrinsic and extrinsic aging are interdependent.

Funding for this research was provided in part by the National Institutes of Health’s (NIH) NHLBI and the NIH’s National Center for Advancing Translational Research and Bioinformatics at BUMS and the study’s other senior co-author.

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**Research in Brief**

**Costello Named William Fairfield Warren Distinguished Professor**

**Catherine Costello, PhD**

Catherine Costello, PhD, professor of biochemistry and of physiology and biophysics, has been named a Boston University William Fairfield Warren Distinguished Professor for her scholarly contributions.

Costello, also professor of chemistry in the College of Arts & Sciences, established the internationally recognized BU Center for Biomedical Mass Spectrometry. She is one of four BUMS faculty members working to develop and apply high-end instrumentation and methods. “Having appointments in several departments is sometimes regarded as odd, but this professorship underscores the value of crossing boundaries,” says Costello, whose list of honors includes the 2010 Field and Franklin Award from the American Chemical Society.

Funded by the National Institutes of Health, her lab is devoted to improving the sensitivity and applications of mass spectrometry, an analytical technique used to determine the composition of large molecules such as the proteins and carbohydrates that make up blood and other body tissues. Mass spectrometry is an increasingly valuable tool in clinical and diagnostic medicine. Used to analyze inorganic as well as organic solids, liquids, or gases, it determines the composition of compounds by ionizing them and comparing their molecular weight, or mass, before and after the process.

“A part of the COPD ‘signature’ reverses with therapy,” says Costello. “We can look at the structure of even very large molecules and look at how they change with the development of a disease,” she says. “If these molecules are on the surface of a cell, such as a cancer cell, we can look at markers that take the cell somewhere, and examine subtle differences in the structure of carbohydrates or proteins.” In her years of developing and refining mass spectrometry applications, Costello, who collaborates on research of cancer, infection, and antibiotic-resistant Lyme disease, has seen the field grow exponentially. “We now have the sensitivity to do things you couldn’t even think about doing before,” she says. “We can look at molecular changes contributing to cardiovascular disease in people who are obese or have diabetes.”

The William Fairfield Warren Distinguished Professors are named for the University’s first president, who led BU for three decades, beginning in 1873. The endowed professorships are supported by the William Fairfield Warren Fund. Among the honorees are George Annas, a School of Public Health professor and chair of the Department of Health Law, Bioethics & Human Rights; and a School of Law and School of Medicine professor, and James Collins, a College of Engineering professor of biomedical engineering.

This article first appeared in BU Today.
Under Antman’s stewardship, BUSM strives to ensure that deserving women are nominated for professional awards and societies and pushes for a multicultural campus.

Under Antman’s stewardship, BUSM strives to ensure that deserving women are nominated for professional awards and societies and pushes for a multicultural campus.
Peter Mozden, MD ‘53, my old friend and colleague who in 1988 convinced me to come to Boston University, was a pioneer surgical oncologist with an international reputation. Since 1949, when he began medical school here, he had maintained a deep loyalty and commitment to the Boston University School of Medicine and its mission. In 1989, he established the Peter Mozden Visiting Professorship and renamed the surgical oncology service the Mozden service in his honor. Peter, in turn, started the Mozden summer student fellowship and the Mozden award, given to a graduating senior for surgical scholarship.

A Good Map Reader

My last conversation with Peter Mozden, MD ‘53, professor emeritus of surgery

BY ROBERT M. BEAZLEY, MD, PROFESSOR EMERITUS OF SURGERY AND MEDICINE

Peter Mozden, MD ‘53, my old friend and colleague who in 1988 convinced me to come to Boston University, was a pioneer surgical oncologist with an international reputation. Since 1949, when he began medical school here, he had maintained a deep loyalty and commitment to the Boston University School of Medicine and its mission. In 1989, I established the Peter Mozden Visiting Professorship and renamed the surgical oncology service the Mozden Service in his honor. Peter, in turn, started the Mozden Summer Student Fellowship and the Mozden Award, given to a graduating senior for surgical scholarship.

I visited Peter on the afternoon of January 3, 2011, a cold, wet, and gray day. He was quite ill, so I decided to keep my visit brief. Our colleague, Dr. David McAneny, was also visiting, and he and Peter began to discuss Peter’s clerical status.

I knew a little about Peter’s service in World War II and that he liked to tell stories. Hoping to change the conversation and perhaps learn a little more about him, I said, “Peter, tell us what you did when you were in the Army. Were you drafted out of college?”

“Well, not exactly, I got one year in but was not a good student,” he said. “I had to take ROTC and did well, with a special comment about his leadership, his knowledge, his teaching, and his dry and unflappingly sense of humor, but mostly for his dedication to the care of children and to the education of hundreds of medical students and residents at BUMC. He received his bachelor’s from Villanova University in 1946 and his medical degree from Boston University School of Medicine in 1948. He completed pediatrics and radiology residencies at Boston City Hospital (now Boston Medical Center) followed by a fellowship in pediatric radiology and serving as chief resident in pediatrics at Boston Children’s Hospital. He also served as a major in the US Air Force.

Until his retirement in July 2012, Dr. Cranley devoted his career to pediatric radiology and caring for children at Boston Medical Center, where he served as pediatric radiologist, program director of pediatric radiology, and vice chair of graduate medical education. He was a member of the BUMC Admissions Committee for two decades. A gifted clinician, he was passionate about teaching and overseeing the work of medical students and residents. He received numerous accolades for his teaching and scholarship, most notably the Award for Teaching Excellence from the Society for Pediatric Radiology.

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Jane O’Hern was a well-known figure in the Boston University School of Medicine, where she was a beloved administrator, advisor, and friend. She was instrumental in developing the mental health counseling and urban communities to develop cancer education programs.

Diane Weiner, PhD, assistant professor of family medicine and core faculty of the master’s program in medical anthropology and cross-cultural practice in the Division of Graduate Medical Sciences, was presented with a special award for her service to the Division of Graduate Medical Sciences.

Dr. Snider was an outstanding clinician, scientist, teacher, administrator, academic leader, advisor, and friend. He influenced the lives of his patients, students, and trainees, and informed and educated countless others through his administrative duties and numerous publications.

Dr. Snider came to BUSM in 1968 as professor of medicine and head of the Pulmonary section. He teamed with thoracic surgeon and physician Edward Gaensler and Carl Franzblau, chair of the BU Department of Biochemistry, to develop a research program in lung cell and molecular biology, and built an academic pulmonary training program at Boston University. They merged the pulmonary programs at three hospitals—BUMC, Boston City Hospital, and the Boston Veterans Affairs Hospital. Led by Dr. Snider, they built one of the pre-eminent training programs in the US, which attracted research trainees from around the world. He was also instrumental in developing and guiding the scientific and research programs of the Alpha One Foundation and an important contributor to the NIH Lung Division programs.

The Gordon and Ruth Snider Professorship in Pulmonary Medicine was endowed at BU in 2000. Plans for a lectureship in his name are in progress. He leaves his wife, Sarah Everett, two sons, a daughter, two stepdaughters, and many grandchildren.

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Giving

Robert E. Schiesske (MET’78, GSM’82)
A LOVE OF LEARNING
BU alumnus honors his parents through the School of Medicine.

The scholarship agreement begins, “The Alice (Davis) and Victor Schiesske Scholarship Fund is established at Boston University by Robert E. Schiesske (MET’78, GSM’82), in honor of his parents, to whom he is forever grateful.”

Robert Schiesske lights up when he talks about his parents. He describes his father, Victor, as a resilient and principled man. “He battled corruption within his own company,” Schiesske says, “and he survived the death of my mother, four bouts of cancer, and continuing congestive heart failure by keeping up his strong work ethic and daily activities.”

Schiesske’s mother, Alice, was generous and always connecting with people. “You could climb a mountain with her, and she’d fall way behind, talking to the other people on the trail,” Schiesske says. “Then, you’d turn and make your way back down from the summit, and everyone you met who was still climbing would have some story about my mother—about how kind she was or the conversation they’d had, and eventually you’d find her again, talking to someone new.” In 1939, she met an Australian rancher on a train; he sent her a Christmas card every year until his death. Alice Schiesske was unforgettable.

And together, the Schiesskes shared a love of learning and knowledge. Robert grew up in a home full of newspapers and magazines, and his parents instilled a deep appreciation of education and opportunity in him. He was already working hard in the IT field when the time came to get a second degree. Knowing how important work was to his family, he searched for a master’s program that would allow him to continue his day job, but also give him an in-depth understanding of computer science. “BU had a nice evening program,” he recalls. “I could have supper in the company cafeteria and walk down to campus. It was almost a second job.” A couple of years later, Schiesske had his degree from Metropolitan College and entered BU’s MBA program with another evening schedule and more opportunity to expand his knowledge.

After graduation, Schiesske’s connection to BU faltered a bit. “Once I had the degrees, I would glance through the medical community,” Schiesske explains. “The Wall Street Journal recently highlighted health care as nearly the top choice of retirees for ongoing support.” To Schiesske, this makes sense; after years of meeting doctors and witnessing medical procedures, the effects of degenerative diseases, and the difficulties in geriatric care, Schiesske knows how important health care is and how much support it needs in order to improve treatment and find cures.

Having been a student of technology and business, Schiesske might not have immediately considered his alma mater except for the strong reputation of BU’s School of Medicine. He knew he could give to a national health organization, but this MBA-holder knows a little something about return on investment. As he puts it, “A very successful mutual fund manager once said, ‘Invest locally—it’s what you know best and it’s easy to keep track of progress.’”

In addition to the scholarship, Schiesske has created several bequests, including a stroke fellowship named for his mother and a geriatric fellowship named for his father. He aims to further research and medical struggles his parents experienced.

Thanks to Robert Schiesske’s generosity, these memorials will carry the names of Victor and Alice in perpetuity, reminding future recipients to work hard, never give up, and be generous, curious—and unforgettable.

www.bu.edu/supportingbusm

Middlesex District Medical Society Endows Emergency Fund for Medical Students

BU-SM is the beneficiary of a $100,000 contribution by the Middlesex District Medical Society as part of an effort to establish endowed funds at all of the medical schools in Massachusetts to benefit medical students during an unanticipated financial emergency. The endowed funds at the four medical schools will be called the “Middlesex District Medical Society Student Emergency Fund.”

Barry M. Manuel, MD, secretary/treasurer of the Middlesex District Medical Society and BUMC associate dean and professor of surgery, reported that for years the district has been contributing funds to Massachusetts medical schools to help meet the unanticipated financial needs of medical students. “Our district felt we had the necessary funds to make a major commitment to our medical students,” Manuel said. “It is our hope that others will see this as an important safety net for our medical students and contribute to these funds.”

The Middlesex District Medical Society is a component of the Massachusetts Medical Society, the commonwealth’s professional association of physicians and medical students. “The generosity of the Middlesex District Medical Society will assist medical students at a crucial, and often urgent, junction in their lives,” said Dean/Karen Antman, MD. “We are grateful for the Society’s considerable foresight of the unanticipated financial needs of our students.”

Barry M. Manuel, MD
Dear Friends,

Two of the School of Medicine’s highlight events occurred in May: Alumni Weekend and Commencement. Alumni Weekend was a great success, with many reunioners from classes ending in 3 and 8. The 25th reunioners, the Class of 1988, and 50th reunioners, the Class of 1963, were well represented indeed.

One of the Alumni Weekend highlights was the “Campus Experience” program we developed to give alumni a taste of what it is like to be a current BUSM student. Faculty members spoke of the new tools being used to enhance education, and a panel of students gave presentations about other learning activities at BUSM that add to their overall experience. We were also happy to hear alumnus Jim Brust ’68 give a truly informative talk on the history of the School of Medicine. An amateur historian with a treasure trove of facts and photos, Dr. Brust wonderfully exemplifies our multitalented alumni community.

Commencement showcased the tremendous quality of BUSM students and our outstanding faculty. It is an event of ritual as well as a joyful and spontaneous experience. As associate dean for alumni affairs, I am a program participant; I personally present each graduate with a welcome packet and congratulate them on their graduation—and on becoming our newest alumni. All of the student speakers for both the GMS and MD/PhD ceremonies noted the rigor of their education as well as the impressive support they received during their years here that helped make their achievements possible. You will be pleased and proud to know that the emphasis on caring for patients remains the center of a BUSM education.

With the close of one academic year and the start of the next one soon to come, BUSM continues to be an institution of extraordinary education and research as well as a community of caring and connection.

Best regards,

Jean E. Ramsey, MD ’90, MPH ’08
Associate Dean for Alumni Affairs
Associate Professor, Ophthalmology and Pediatrics
Vice Chair of Education and Program Director

In April, Thomas Insel, MD, presented a prestigious TED Talk on the topic of “Toward a New Understanding of Mental Illness.” A Class of 1974 graduate and a renowned psychiatrist and neuroscientist, Insel is director of the National Institutes of Mental Health (NIMH). Noting that early detection and early intervention have greatly reduced the mortality and morbidity rates of major chronic illnesses such as cancer, heart disease, and stroke in the past two decades, Insel proposes these strategies be applied to treating mental illnesses. Major mental disorders like schizophrenia, bipolar disorder, depression, and obsessive-compulsive disorder start very early in life, with 50 percent afflicted by age 14 and 70 percent by age 24. Insel suggests thinking of them as disorders of the brain rather than mental or behavioral problems, thus opening up a new framework for understanding mental illness; changes in the brain are manifest years before behavior changes. For the full talk, go to www.ted.com/speakers.

More than 500 School of Medicine alumni and their guests came back to the Medical Campus on May 3 and 4 to attend the School’s annual Alumni Weekend, some for the first time in more than 60 years.

After a campus welcome and Grand Rounds, alumni listened to a group of faculty members and medical students discuss new instructional technology and its impact on the experience of current medical students at BUSM.

Deborah Vaughan, PhD, professor of anatomy and neurobiology and assistant dean for admissions, shared how BUSM is using technology that is changing the way students learn today. “It is often said that technology isolates students, and what we are doing here at the medical school is making sure that we take advantage of the technology to help the students work in...”
Lectures are recorded and presented online for students who miss class, and can be used as a resource to clarify material. Teams,” said Vaughan, this year’s winner of the Metcalf Cup and Prize for Excellence in Teaching. Vaughan demonstrated how students and faculty use the online learning management system Blackboard to share educational resources. Laptops are used during class, to take exams, and in place of microscopes in the lab. Lectures are recorded and presented online for students who miss class, and can be used as a resource to clarify material. She highlighted technological tools for clinical training including robotic teachers—affectionately called SimMan and Friends—that simulate patients and are programmed for a variety of situations, including emergency care, so students can practice their clinical skills.

“When I got here I thought I was going to spend every second of my life studying,” said Mauro Caffarelli, a second-year student at BUSM. “It didn’t turn out that way. The way we learn here is tremendously efficient.”

Doug Hughes, MD, associate dean for academic affairs,
also explained plans to expand the medical school curriculum to a global platform by implementing a third-year pediatric clerkship option for BUSM students in the US Virgin Islands, which began this June.

“We have been chosen by the AAMC (Association of American Medical Colleges) to pilot a new global program, the Global Health Learning Opportunity,” said Hughes. “This program will help facilitate our fourth-year students doing electives globally and will allow fourth-year medical students from other countries to take electives more easily at BUSM. Our students can choose from 15 international medical schools in their fourth year, and we will be bringing international students to our campus each year. The goal is to create a diverse, rich, global experience for our students both in travel and also on campus.”

In addition to reunion dinners and the annual meeting and banquet of the Alumni Association, BUSM alumni attended a presentation on BUSM’s extraordinary history. Tours of the Medical Campus highlighted new classrooms, expanded research facilities, the Alumni Medical Library, and the new medical student residence. The weekend ended in a night of dinner, dancing, and award presentations, recognizing Robert Golden ’79 and Andrew Levey ’76 as 2013’s Distinguished Alumni.
11. Miyamoto, Sonoma, and his wife, Terri and her mother, and his parents.

1951 • Harold I. Miller of Laguna Woods, California, on January 9, 2013, at the age of 97. A general surgeon in the Boston area for many years, he was a former professor of medicine at BUMS and a lecturer at Harvard Medical School. He was also a professor of medicine at the University of Massachusetts Medical School and was chief of the Department of Medicine at UMass Memorial Health Care and as medical director of the UMass Memorial Medical Center, Worcester, and as medical director of the UMass Memorial Medical Center in Valley Worcester and Clark Manor Nursing Home. He leaves his wife, Rosemary S. (Sakowski) Tan- guay, a son and daughter, a grandson, and his parents.

1951 • Joseph A. Alpert of Savannah, Georgia, on May 27, 2012, at the age of 90. A retired vascular surgeon, he served as a captain in the US Army Medical Corps during World War II. He leaves his wife, Margaret, three sons, and three grandchildren.

1952 • Arnold Abrams of Lexington, Massachusetts, on December 27, 2012, at the age of 85. A psychoanalyst, Abrams spent more than 50 years in public service, working for the Commonwealth of Massachusetts as a consultant and as assistant superintendent of the Department of Mental Health, and filled positions with the Veterans Administration and the Social Security Administration. He practiced at the University of Massachusetts Medical School. He leaves his wife, Rosalind (Lyn) Shalek, his two daughters, his four grandchildren, and two great-grandchildren.

1954 • Harold H. Johnson of Rochester, Minnesota, on April 12, 2012, at the age of 80. He practiced internal medicine and gastroenterology for 45 years and was chief of medicine at Mayo Clinic Medical Center in Rochester, Minnesota. He was a member of the American College of Physicians and the Massachusetts Medical Society. He leaves his wife, Joann Johnson, daughters, sons, and eight grandchildren.

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1955 • Summer Borkowski of Cum- berland, Maine, on January 9, 2013, at the age of 85. A pediatrician and infectious disease specialist, he was on staff at Maine Medical Center and Mercy Hospital in Portland, Maine, and was a clinical associate professor of pediatrics at Tufts University School of Medicine and the University of Vermont College of Medicine. He was a recipient of the National Science Foundation fellowship in the Research Division of Infectious Diseases in the Dr. John Erberdis Labora- tory at Children’s Hospital Medical Center in Boston, and a research fellow in medicine at Harvard Medical School. In 1964, he took a position at Downstate Medical Center in Brooklyn, New York, and for the next 10 years he was an assistant professor in pediatrics, researcher, and lecturer with publications on infectious diseases. In 1971, Borkowski left medical research to open a pediatric practice in Portland, Maine. He served in the US Army as a radio intercept operator. He leaves his wife of 61 years, Barbara (Leet) Borkowski, and his three daughters.

1957 • Gary M. Tung of West Boylston, Massachusetts, on April 21, 2013, at the age of 61. An internist and generalist, he was an assistant professor of medicine at the University of Massachusetts Medical School and served as an outpatient preceptor for the Internal Medicine Residency Program. He also served on the board of trustees at Central Mass Health Care and as medical director of the Internal Medicine Residency Program. He leaves his wife of 38 years, Marilyn S. (Sakowski) Tan- guay, a son and daughter, a grandson, and his parents.

1960 • Alfred W. Holm of Killeen, Texas, on March 17, 2013, at the age of 88. An internist and chief of the Clinical Department of Infectious Diseases at the University of Miami, he leaves his wife, Grace (Holm) Holm, his son, and two grandchildren.

1961 • Leonard Alexander of Rochester, Minnesota, on April 5, 2013. He practiced internal medicine and gastroenterology for 45 years and was chief of medicine at Mayo Clinic Medical Center in Rochester, Minnesota. He was a member of the American College of Physicians and the Massachusetts Medical Society. He leaves his wife, Joann Johnson, daughters, sons, and eight grandchildren.

1961 • Seymour B. Shalek of Boston, Massachusetts, on September 5, 2012, at the age of 91. A radiologist, he was on the staff of Beth Israel Hospital in Boston for 45 years, volunteered his time at Boston City Hospital, and taught at Harvard Medical School. He served as a captain in the US Army Medical Corps during World War II. He leaves his wife, Rosalind (Lyn) Shalek, his two daughters, his four grandchildren, and two great-grandchildren.

1965 • David Hutchison of Atascadero, California, on September 10, 2013, at the age of 78. A psychiatrist, he was predeceased by his wife, Elizabeth O’Rourke Hutchison, and leaves his significant other, Terri Kennedy, two daughters, six grandchildren, and eight great-grandchildren.

1965 • Steven Cogan of Rockefeller Center, New York, on March 7, 2013. A pediatrician, he practiced in pediatrics, researcher, and lecturer, with publications on infectious diseases. In 1971, Borkowski left medical research to open a pediatric practice in Portland, Maine. He served in the US Army as a radio intercept operator. He leaves his wife of 61 years, Barbara (Leet) Borkowski, and his three daughters.

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1971 • W. Frank Curran of the New England Thoracic Society (1967–1968), He served in the US Navy submarine service and as a medical officer at the Commonwealth of Massachusetts Medical Society. He leaves his wife, Margaret, three sons, and three grandchildren.

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2001 • Autumn Kline of Pittsburgh, Pennsylvania, on April 20, 2013, at the age of 41. A neurologist, she was an assistant professor of neuro- urology and obstetrics and gynecol- ogy at the University of Pittsburgh School of Medicine and was chief of the Department of Women’s Neuro- urology at the University of Pittsburgh Medical Center (UPMC) and at Magee-Womens Hospital/UPMC Presbyterian. She was best known for her work focusing on neuro- urological diseases in pregnancy. She established the women’s neuro- urology division within the UPMC Department of Neurology, one of the first in the country. She published numerous papers and book chapters, and lectured nationally on women’s neurological issues. She leaves her husband, Dr. Robert J. Ferracci, a daughter, a stepdaugh- ter and stepson, and her mother and father.
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Please contact the BUSM Development Office at busmdev@bu.edu or 617-638-4570, or visit www.bu.edu/supportingbusm.
Nationwide coverage of the Boston Marathon bombings featured stories of the critical care BUSM doctors at Boston Medical Center provided to victims of the explosions.